

CHAPTER 5

THE INDIAN LPG PROGRAMMES: GLOBALLY PIONEERING INITIATIVES

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Before about 1850, the entire world used solid fuels for cooking—biomass and coal, but now, about 60 per cent of households globally use clean fuels, gas and electricity. Clean and efficient kitchens have become an expected component of development and an aspirational goal for households. In India, however, about 60 per cent of households still primarily used biomass for cooking in 2014. This was about 700 million people, and in spite of the growing wealth in the country, the number had remained about the same for nearly thirty years, although the number of gas users had increased. Just waiting for development to occur has not worked as a means to deal with this problem for the poorest, mostly in rural areas, who have been caught in what might be called the '*chulha* trap', even if they have benefited in other ways from development through increasing penetration of mobile phones, good water and sanitation, satellite TV and so on.

It has relatively recently been realised that the smoke from *chulhas* is a major health hazard. Indeed, a typical *chulha* emits as much smoke in an hour as 400 cigarettes being burned in the kitchen. Although not as risky per person as actually smoking cigarettes, the health impact is still large. Based on hundreds of studies in the health literature, many undertaken in South Asia, it

is now estimated by the World Health Organisation (WHO) and others that about 9 lakh premature deaths occur in India annually from *chulha* smoke. This is almost equal to the death toll from smoking, not because the risks per person are the same, but because of the large number of people affected by *chulha* smoke, particularly women and young children who generally do not smoke but do spend much time in kitchens.

In addition, just in the last few years, it has become clear that *chulhas* contribute significantly to the severe outdoor pollution problem in the country as well. Estimates by scientists have not yet stabilised, but range to date from 26 to 50 per cent. Whatever the true number, it is clear, however, that it will not be possible to address the serious ambient air pollution problem nationally without also addressing dirty combustion in households as well as in power plants, vehicles, factories and crop burning.

The first truly clean fuel, on the so-called household energy ladder during development, that addresses both household and ambient pollution is LPG (liquefied petroleum gas), which came to India in the late 1950s. Since then, however, even if growing at an average of 6 per cent for many decades, LPG connections have only been able to cover the growth of the middle class despite being subsidised by the government to some extent for everyone. Until recently, there were no special programmes or efforts to accelerate growth of LPG into poor populations caught in the *chulha* trap.

Starting in 2015, however, the Government of India (GoI) and the three oil marketing companies (OMCs) that sell most of the LPG in the country embarked on three major programmes to actively promote LPG to the poor—each pioneering, aggressive and relying heavily on both sophisticated social marketing and what is summarised in India as ‘JAM’ (a linking of ‘Jan Dhan’ aimed at financial inclusion through access to banking facilities, ‘Aadhaar’ as a universal ID and mobile phones). The first programme, ‘Pahal’, shifted to paying subsidy fuel payments directly into people’s bank accounts, thus enabling the sale of all LPG at market rates, greatly reducing the diversion of LPG to the non-household sector. The second, ‘Give it Up’ (GIU), persuaded middle class households to voluntarily give up their subsidies to connect the poor through the companion ‘Give it Back’ campaign, with a website that showed the name of the poor person who benefited from each subsidy

that had been given up. As of May 2017, over 10 million people had 'given it up'.

The third programme, 'Pradhan Mantri Ujjwala Yojana' (PMUY), underway now, will provide free connections to a total of 50 million poor households by 2019 beyond the 20 million already installed by May 2017. This is creating a significant impact because many households can afford the monthly subsidised cost of LPG but have not had the upfront cash to pay for the connection costs, including deposit on the LPG cylinder and the stove itself.

The result is a remarkable increase in the historically modest expansion of LPG connections. Although the 6-7 per cent growth in connections continues for the middle class, now 6-7 per cent more occurs among the poor through GIU and PMUY. It is thus double the old rate, albeit only now for a bit more than two years. The country now expects to cover more than 90 per cent of all households early next decade with clean cooking, although the official target is currently 80 per cent by 2019. This is a remarkable transformation in the household cooking energy space in any country, but especially so for one of India's size, and due to innovations of several kinds in policy measures.

COST

What is the cost of these LPG programmes in India? This is not a simple question. The Pahal programme, for example, greatly cuts the inherent waste ('leakage') in the past subsidy system, saving the equivalent of many hundreds of millions of dollars a year resulting from subsidised LPG leaking to restaurants, small factories, etc. instead of households. But at the same time, there also were significant shifts in international fuel costs over the same period, thereby causing a drop in the market rates of LPG and the consequent subsidy needed. In addition, the Give it Up campaign, which has persuaded over 10 million middle class households to give up their subsidy to shift it to poor households, is essentially a multibillion dollar, zero-sum internal 'foreign aid' programme over ten years from the well-to-do to the poor. Much of the additional funding for the Give it Back campaign came from the CSR (corporate social responsibility) funds required to be spent by corporations according to the recent changes in Indian tax laws. The GoI has

committed US\$ 1.2 billion (Rs 8,000 crore) to the Ujjwala programme, all through 2019, but this still probably results in net savings to the taxpayer compared with the situation before 2015.

I might note that none of this came from the health or environment sectors, which nevertheless benefit. Indeed, over time we can expect less ill-health in village households among women and men due to the decrease in a range of diseases associated with *chulha* smoke, with particular benefits for children due to lower pneumonia rates and for newborns due to a reduction of the rate of low birthweight. Low birthweight, which leads to a range of child and adult health problems, has been difficult to control in India, which suffers rates similar to some of the world's poorest countries, such as Niger and Yemen. It is a national health priority to improve birth outcomes to protect health of the country's newborn children.

None of this has, however, affected the budget of the renewable energy ministry, which still runs the national biomass and biogas stove programs. These programmes should still be encouraged, but perhaps now be better focused on the very poorest and more remote populations that will not be reached by LPG in the next decade. These people would still benefit from more efficient stoves that at least lower pollution exposure to some extent. Unfortunately, however, no biomass stove on the market today is nearly as reliably clean as gas fuels and, thus, cannot be proposed yet as a health measure if gas is available.

ALL HOUSEHOLD FUEL INITIATIVES

One of the lessons of the LPG experience in India is the implications of scale. With 18,000 local distributors, each with 30 to 40 employees operating house to house, and plans to hire 10,000 more distributors underway, the LPG industry will soon have an army of a half a million outside of cities to wield in promoting and servicing its product locally, as well as a well-functioning infrastructure from port to household to keep it going. It is also likely to have a high degree of quality control and transparency (national website with every LPG customer), moving towards near-universal cashless transactions via JAM. This is substantial job creation and contribution to the national economic agenda. Indeed, as the prime minister's chief economic

adviser has noted, 'LPG is leading the way' in bringing the rural poor into the main economy.

LPG is a unique fossil fuel. No one looks or drills for it; nearly all of it comes as a by-product these days from natural gas development. With great expansion of natural gas from shale gas ('fracking'), there is suddenly a surfeit of LPG globally; in three years, the US has gone from being a net importer to being the largest exporter in history. Thus, it could be argued that LPG is found anyway and will be used somewhere no matter what—autos, petrochemicals, or being flared, are the other main uses besides households. Why not utilise as much as possible to its highest social value use—cooking for the poor? In any case, all projections indicate a large LPG/PNG (piped natural gas) supply for decades ahead although, of course, projections in this industry have sometimes gone astray.

PNG is also growing rapidly in India due to ambitious plans in more than 200 cities. Although starting at a low level, it has grown at nearly 12 per cent a year since 2014. The plan is to reach 10 million connections by 2019 and perhaps as much as 20 million by the first part of the next decade. One might wonder why it matters in terms of household air pollution in poor rural households. This is because people taking up PNG are leaving their LPG connections behind. This frees up LPG subsidies and supplies for application elsewhere and slows the growth of imports. Before long, India, like currently developed countries, may be supplying natural gas for household use to its cities, which will be growing as urbanisation progresses, and LPG will be limited to rural areas where pipelines are not practical: a dual-fuel approach to clean cooking for everyone as already shown to be viable in many other countries.

The Indian government is also taking on kerosene, a fuel that should be eliminated for household use due to its health-damaging smoke pollution, which is also among the richest sources of black carbon in the world, a strong actor in climate change. Like LPG, kerosene is partly subsidised but at least half the fuel ends up in the tanks of diesel trucks instead of households—a waste of public funds. Unlike LPG, however, decisions on kerosene subsidies are made at the state level with consequent complexity and increased opportunities for corruption.

Relatively few households use kerosene for cooking these days, but some still use it for lighting due to inadequate supplies of electricity in many areas. As reliable and inexpensive solar LED lights are now available, there is little social value served by continued kerosene subsidies. The PMUY programme in some states, therefore, requires people to give up subsidised kerosene if they accept the free LPG connection. In addition, the Central government has reduced its kerosene allocations to the states by large increments—20 per cent in 2016-17 and 25 per cent more in 2017-18. This will, in the end, save billions of US dollars in subsidy payments. Money much better spent on dispersing LPG.

USAGE

As we all know, whenever a new technology of any sort is adopted, it rarely fully displaces the old instantly as old habits dies hard. High usage is still needed, however, as well as reduction in use of the old polluting technology for full health benefits to be obtained. As LPG seems nearly universally aspirational in India and the GoI/OMC programmes have found a way to provide access to hundreds of millions of people, research agendas (mine and others') now focus on ways to enhance usage, to shorten the 'stacking' period in stove parlance when both old and new stoves are used, to substantially reduce the use of biomass as well. This is typical for health interventions: it is not enough just to deliver condoms, bed nets, institutional delivery facilities, etc.; ways are needed to incentivise people to use them and to stop the unhealthy traditional practices. Among the major actions of the GoI/OMCs to accomplish this goal is to work to truly make LPG refills be delivered to all households in the same way as it occurs in cities—to eliminate the need to go back to biomass when waiting for a new cylinder.

THE FUTURE

New ideas are still being developed, such as linking LPG connections to the Rural Employment Scheme, the Universal Health Insurance Scheme and the national programmes that exist to assist poor pregnant women with cash incentives for healthy behaviour. Indian Oil is trying out the concept of 'smoke-free villages', which enable more efficient provision of fuel, higher

protection from air pollution in the village and the use of social pressure to convince people to stop using their *chulhas*. Indeed, the government and industry seem to have the bit between their teeth, so to speak, and new ideas of all sorts are being considered.

As the programme reaches the poorest and remotest parts of the country, it is clear that new arrangements for LPG distributors will be needed to allow them to work viably where the density of connections is lower than distributors have enjoyed up to now. Use of women's self-help groups, rural cooperatives and other existing organisations will be needed as well as engaging more directly the vast army of rural health workers (ASHA) that operate nationally. One of the innovations in the new programme is a massive national database; every customer is now represented. This can be tapped using Big Data methods to figure out what works to reduce refill times, for example. New ideas are coming rapidly and being tried in different parts of the country.

WHY DID IT WORK?

Why did this work in India and not yet elsewhere? It seems that several factors came together to make it happen. First, of course, although some of the programme ideas were proposed and even initiated under the previous government, they did not take root because of a lack of support at the top. It was the current (Modi) government that took them up in a big way with major support at every level from the Prime Minister himself down to individual households giving up their subsidies. New ideas and strong action were rewarded from the top. Second, the digital revolution in the form of digital bank accounts, cell phones and electronic ID cards made more efficient and secure administration of the programmes possible. Third, the health impacts of continued biomass use, although known in the health field for a decade or more, became more widely known to policymakers and the media; the health burden came to be seen as both too large and unnecessary. Fourth, fortuitously, the major programmes were started during a time of low international LPG prices, making subsidies cheaper than otherwise. Fifth, the OMC-GoI relationship is somewhat unique in that the OMCs operate as private companies and, consequently, with much greater efficiency than

State-operated companies, but the GoI still has more than 50 per cent share in ownership. This allowed for a clear articulation of priorities right down from the prime minister to the leadership and senior officials in the Ministry of Petroleum and Natural Gas to the executives and field workers of the oil companies, leading to a swift and effective implementation of the programmes.

The US\$ 1.2 billion devoted to the PMUY programme is a small fraction of other major national subsidy programmes, such as the rural-employment scheme and the food subsidy scheme. It is hard to call it expensive, particularly when it is accompanied by more focused targeting of subsidies. Indeed, it would seem that the programme can soon claim to be a social investment, not a subsidy. Both come from the taxpayer, but the former has a much different connotation when focused on the poor.

Finally, the world is watching and soon, one hopes, other countries will follow India's lead in pushing clean fuels into remote and poor populations. India leads not just by example but by some brilliant innovations, including the GIU programme. It is very difficult to take subsidies away from people once they are ensconced; governments have fallen trying to do so. Asking them to give the subsidy up voluntarily to help individual poor people was an inspired alternative that kicked off the national initiatives in a highly positive way. Not only is India now thinking to apply this idea to other long-term subsidies, such as those for food, but the idea could well find application in many other countries. India may have sparked an entirely new realm of action to help the poor.

ENDNOTES

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